

ELISA – Experimental Large Italian Seismic Array

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The Italian Seismic Network (ISN) operated by the INGV consists of more than 200 seismic stations and has recently been upgraded by some dozen broadband seismic stations (Nanometrics Trident 24 bit digitizers, Trillium seismometers). Real time data acquisition at Central Data Analysis Centre at the INGV-Rome is realized by satellite data transmission (Libra VSAT).

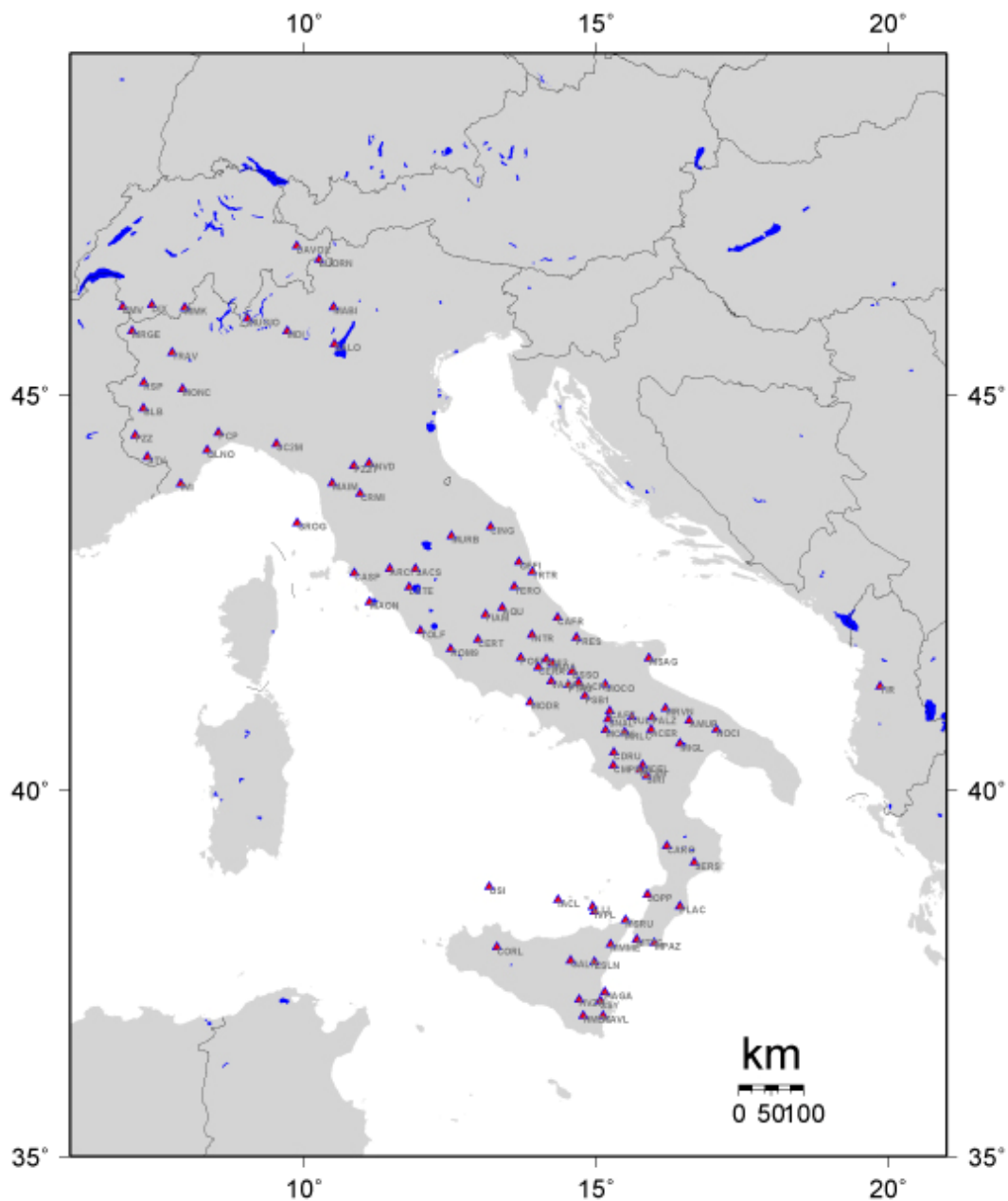


Fig. 1 – Map of the Italian Seismic Broadband Network

Together with MedNet, the new satellite stations form up the Italian Seismic Broadband Network (ISBN). According to the bandwidth of the recording seismometers (40s and 120s) different subnet-configurations of the ISBN can be designed to apply array methods to regional and teleseismic events.

The analysis program actually running at the Central Data Analysis Centre at Rome allows to estimate also azimuth and slowness of the incoming wavefront by a plane wave fit of the first arrivals. However, in order to use also the coherence properties of the waveforms, we applied f-k analysis and beamforming to different ISBN sub-arrays using in a first approach already triggered data. Events have been downloaded from the ISIDE-data archive (<ftp://iside.rm.ingv.it>) and analysed by Seismic Handler, the data analysis software developed and used at the Gräfenberg-array (Germany). Actually backazimuth and apparent velocity of teleseismic events stored on the ISIDE-server are determined semi-automatically. We present f-k analysis prominent earthquakes and calculated the respective misfit between the theoretical and measured slowness. In order to perform an array calibration of a the “complete” slowness space a longer operation period of the array is required.

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